

when k_1 is a magnitude of a wave vector of the lowest-order coupled band.

21. An optical device according to Claim 14, wherein said medium tangent to said surface of said multilayer structure provided as said beam incidence surface or as said beam exit surface is air or vacuum.
22. An optical device according to Claim 14, wherein:
- said periodic multilayer structure is an optical multilayer film in which one structure formed on a transparent substrate is repeated periodically with respect to a wavelength used; and
- a surface of said multilayer film tangent to said substrate is provided as said beam incidence surface or as said beam exit surface.
23. An optical device according to Claim 14, wherein said one period in said periodic multilayer structure is constituted by layers formed out of difference materials.
24. An optical device according to Claim 14, wherein a layer varying continuously in terms of composition or characteristic is contained in a boundary between every two layers constituting said periodic multilayer structure.
25. An optical device according to Claim 14, wherein a ratio of a maximum refractive index of a plurality of materials constituting said periodic multilayer structure is not smaller than 1.1 in a wavelength used.
26. A spectroscopic apparatus comprising an optical device constituted by a periodic multilayer structure as defined in Claim 14, means for making a mixture of various luminous flux having a plurality of wavelengths incident on an end surface of said multilayer structure of said optical device, and means for detecting beam rays made to